

REMARKS

Claims 1-20 were pending in the above-identified application when last examined, and claim 3 is amended as indicated above. The claim amendment is not intended to limit the scope of the claims, but instead returns claim 3 to a prior considered form. Claims 1, 2, and 4-20 remain in the form previously considered.

Claims 1, 3-10, 12-14, 17, 18, and 20 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Pat. App. Pub. No. 2004/0190836 (Kilian). Applicants note that the third paragraph of page 3 of the Office Action only listed claims 1, 10, 14, 18, and 20 as being rejected under 35 U.S.C. § 102(e), but in view of the reasons for the rejection, Applicants have interpreted claims 1, 3-10, 12-14, 17, 18, and 20 to all be included in this rejection. Applicants respectfully traverse the rejection as so interpreted.

Independent claim 1 distinguishes over Kilian at least by reciting, “a sub-mount containing conductive traces exposed at a first surface of the sub-mount; ... and a reflector positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount.” Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed.

In regard to trace on a sub-mount, the Office Action cites paragraph [0026] of Kilian. Paragraph [0026] states, “Bond wires or other electrical connections may be provided to connect the light emitting device 30 and monitor diode 32 to metallization contacts. Hermetically sealed feed-through connections 46 may be used to couple the metallization within the recess 28 to electrical contacts on the outside of the package.” Fig. 1 of Kilian shows device 30 is mounted on a cap 22 in which connections 46 reside. Fig. 1 also clearly shows that light from device 30 reflects from cap 22 and passes through a plate 24. Accordingly, connections 46 are at the surface of cap 22, not a surface of the plate 24 through which an optical signal passes.

In accordance with an aspect of the claimed invention, a sub-mount can be fabricated to implement both electrical and optical functions, e.g., provide electrical connections and an optical path. Kilian fails to disclose or suggest such a structure in which an optical signal passes through a surface at which traces are exposed. Accordingly, claim 1 is patentable over Kilian.

Claims 3-9, 18, and 20 depend from claim 1 and are patentable over Kilian for at least the same reasons that claim 1 is patentable over Kilian.

Independent claim 10 distinguishes over Kilian by reciting, “mounting a die containing a laser on a surface of a sub-mount; electrically connecting the laser to

electrical traces in the sub-mount; and attaching a reflector to the sub-mount in a position such that an optical signal from the laser is reflected through the sub-mount.” Kilian discloses attaching light emitting device 30 to a cap 22 containing electrical connections 46. To the extent that cap 22 is considered a sub-mount, Kilian reflects the optical signal away from the cap 22 into and through a plate 24 that provides no electrical connections. Accordingly, claim 10 is clearly patentable over Kilian.

Claims 12-14 and 17 depend from claim 10 and are patentable over Kilian for at least the same reasons that claim 10 is patentable over Kilian.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 102.

Claims 2, 11, and 19 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kilian in view of U.S. patent No. 5,195,156 (Freeman). Applicants respectfully traverse the rejection.

Claims 2 and 19 depend from claim 1 and are patentable over Kilian for at least the same reasons that claim 1 is patentable over Kilian. In particular, Kilian fails to disclose or suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed. The Office Action cites Freeman for disclosing an alignment post. However, even if Freeman did teach an alignment post such as recited in claims 2 and 19 such teaching when combined with Kilian still fails to suggest a structure that directs an optical signal through a surface on which traces of a sub-mount are exposed. Accordingly, claim 1 and claims 2 and 19 are patentable over the combination of Kilian and Freeman.

Claim 11 depends from 10 which is patentable over Kilian at least because Kilian teaches reflecting an optical signal away from the cap containing the traces connected to a device. Again, the combining Freeman with Kilian does not alter the above analysis showing that claim 10 is patentable. Claim 11 is patentable over the combination of Kilian and Freeman for at least the same reasons that claim 10 is patentable over the combination of Kilian and Freeman.

For the above reasons, Applicants request reconsideration and withdrawal of this rejection under 35 U.S.C. § 103.

Claims 15 and 16 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kilian in view of U.S. patent No. 5,822,352 (Mizutani). Applicants respectfully traverse the rejection.

Claims 15 and 16 depend from claim 10, which is patentable over Kilian for the reasons set forth above. Mizutani is directed to fabrication of semiconductor optical systems on a substrate, not to packaging that attaches a die to a sub-mount. Combining Mizutani with Kilian does not change the above reasoning showing claim 10 is patentable. Claims 15 and 16 are thus patentable over the combination of Kilian and Mizutani for at least the same reasons that claim 10 is patentable over the combination of Kilian and Mizutani.

Claim 15 further recites, "connecting a plurality of lasers to a sub-mount wafer that includes the sub-mount" which when combined with "mounting a die containing a laser on a surface of a sub-mount" as recited in claim 10 is clearly patentable over the combination of Kilian and Mizutani. In particular, Kilian teaches mounting a die on a cap 22, and nowhere suggests mounting a die on a sub-mount wafer. Mizutani is directed to fabrication of semiconductor optical devices, and nowhere suggests mounting dies on sub-mount wafers.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

In summary, claims 1-20 were pending in the application. This response amends claim 3 and leaves claims 1, 2, and 4-20 in the form previously examined. For the above reasons, Applicants respectfully request allowance of the application including claims 1-20.

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Respectfully submitted,



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